Nuclear astrophysics at DANCE

Rene Reifarth[1], Ana Alpizar-Vicente[2], Todd A. Bredeweg[1], Ernst-Ingo Esch[1], Uwe Greife[2], Robert C. Haight[1], Robert . Hatarik[2], Andrea K. Kronenberg[1], John M. O'Donnel[1], Robert S. Rundberg[1], John L. Ullmann[1], David J. Vieira[1], Jan M. Wouters[1]

[1] *Los Alamos National Laboratory*
[2] *Colorado School of Mines*

One of the most interesting nuclear physics challenges is obtaining a detailed understanding of the nucleosynthesis processes of the elements. Knowledge about the stellar sites, and how they are governed by stellar evolution and cosmology are a crucial in understanding the overall picture. Information on reaction rates for neutron and charged-particle induced reactions have a direct impact on existing stellar models. Except for the stable isotopes, very few neutron-induced reactions in the energy range of interest have been measured to date. DANCE measurements on unstable isotopes will provide many of the missing key reactions that are needed to understand the nucleosynthesis of the heavy elements. Recent measurements at DANCE motivated by nuclear astrophysics will be presented and possibilities for future experiments will be outlined.

Email: reifarth@lanl.gov